

Materials List for:

# Pre-Clinical Model of Cardiac Donation after Circulatory Death

Henry Aceros<sup>\*1</sup>, Leyla Joulali<sup>\*2</sup>, Mélanie Borie<sup>1</sup>, Roberto Vanin Pinto Ribeiro<sup>3</sup>, Mitesh Vallabh Badiwala<sup>3</sup>, Shant Der Sarkissian<sup>1,4</sup>, Nicolas Noiseux<sup>1,4</sup>

<sup>1</sup>Centre de recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM)

<sup>2</sup>Department of pharmacology and physiology, Faculty of Medicine, Université de Montréal

<sup>3</sup>Division of Cardiovascular Surgery, Toronto General Hospital, University Health Network

<sup>4</sup>Department of surgery, Faculty of Medicine, Université de Montréal

\*These authors contributed equally

Correspondence to: Nicolas Noiseux at [noiseuxn@videotron.ca](mailto:noiseuxn@videotron.ca)

URL: <https://www.jove.com/video/59789>

DOI: [doi:10.3791/59789](https://doi.org/10.3791/59789)

## Materials

Name	Company	Catalog Number	Comments
0,9% Sodium Chloride. 1L bag	Baxter		Electrolyte solution for flushing in the modified Langendorff system.
14G 2" I.V catheter	Jelco	4098	To act as endotracheal tube.
2,3,5-Triphenyltetrazolium chloride	Milipore-Sigma	T8877	Vital coloration
22G 1" I.V catheter	BD	383532	I.V catheter with extension tube that facilitates manipulation for carotid catheterization
Adson Dressing Fcp, 4 3/4", Serr	Skalar	50-3147	Additional forceps for tissue manipulation
Alm Self-retaining retractor 4x4 Teeth Blunt 2-3/4"	Skalar	22-9027	Tissue retractor used to maintain the chest open.
Bridge amp	ADinstruments	FE221	Bridge amp for intracarotid blood pressure measurement
Calcium chloride	Milipore-Sigma	C1016	CaCl <sub>2</sub> anhydrous, granular, ≤7.0 mm, ≥93.0% Part of the Krebs solution
D-(+)-Glucose	Milipore-Sigma	G8270	D-Glucose ≥99.5% Part of the Krebs solution
DIN(8) to Disposable BP Transducer	ADinstruments	MLAC06	Adapter cable for link between bridge amp and pressure transducer
Disposable BP Transducer (stopcock)	ADinstruments	MLT0670	Pressure transducer for intracarotid blood pressure measurement
dPBS	Gibco	14190-144	Electrolyte solution without calcium or magnesium.
Eye Dressing Fcp, Str, Serr, 4"	Skalar	66-2740	Additional forceps for tissue manipulation
Formalin solution, neutral buffered, 10%	Milipore-Sigma	HT501128	Fixative solution
Heating Pad	Sunbean	756-CN	
Heparin sodium 1000 UI/mL	Sandoz		For systemic anticoagulation
Hydrochloric Acid 36,5 to 38,0%	Fisher scientific	A144-500	Diluted 1:1 for pH correction
Ketamine	Bimeda		Anesthetic. 100 mg/ml
LabChart	ADinstruments		Control software for the Powerlab polygraph, allowing off-line analyses. Version 7, with blood pressure and PV loop modules enabled

Left ventricle pressure balloon	Radnoti	170404	In latex. Size 4.
Lidocaine HCl 2% solution	AstraZeneca		Antiarrhythmic for the cardioplegic solution
Magnesium Chloride ACS	ACP Chemicals	M-0460	MgCl <sub>2</sub> +6H <sub>2</sub> O ≥99.0% Part of the Krebs solution
Micro pressure sensor	Radnoti	159905	Micro pressure sensor and amplifier connected to the intraventricular balloon
Pacemaker	Biotronik	Reliaty	Set to generate a pulse each 200 ms for a heart rate of 300 bpm.
pH bench top meter	Fisher scientific	AE150	
Physiological monitor	Kent Scientific	Physiosuite	For continuous monitoring of rodent temperature and saturation during the procedure
Plasma-Lyte A	Baxter		Electrolyte solution used as base to prepare cardioplegia
Potassium Chloride	Milipore-Sigma	P4504	KCl ≥99.0% Part of the Krebs solution
Potassium Chloride 2 meq/ml	Hospira		Part of the cardioplegic solution
PowerLab 8/30 Polygraph	ADInstruments		Electronic polygraph
Silk 2-0	Ethicon	A305H	Suture material for Langendorff apparatus
Silk 5-0	Ethicon	A302H	Suture material for carotid
Small animal anesthesia workstation	Hallowell EMC	000A2770	Small animal ventilator
Sodium bicarbonate	Milipore-Sigma	S5761	NaHCO <sub>3</sub> ≥99.5% Part of the Krebs solution
Sodium Chloride	Milipore-Sigma	S7653	NaCl ≥99.5% Part of the Krebs solution
Sodium Hydroxide pellets	ACP chemicals	S3700	Diluted to 5N (10 g in 50 ml) for pH correction
Sodium phosphate monobasic	Milipore-Sigma	S0751	NaH <sub>2</sub> PO <sub>4</sub> ≥99.0% Part of the Krebs solution
Stevens Tenotomy Sciss, Str, Delicate, SH/SH, 4 1/2"	Skalar	22-1240	Small scissors for atria and cava vein opening
Tissue slicer blades	Thomas scientific	6727C18	Straight carbon steel blades for tissue slicing at the end of the protocol
Tuberculin safety syringe with needle 25G 5/8"	CardinalHealth	8881511235	For heparin injection
Veterinary General Surgery Set	Skalar	98-1275	Surgery instruments including dissection scissors and mosquito clamps
Veterinary Micro Set	Skalar	98-1311	Surgery instruments with microscissors used for carotid artery opening
Working Heart Rat/Guinea Pig/Rabbit system	Radnoti	120101BEZ	Modular working heart system modified for the needs of the protocol. Includes all the necessary tubing, water jacketed reservoirs and valves, including 2 and 3 way stop cock
Xylazine	Bayer		Sedative. 20 mg/ml